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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,377	04/02/2001	Yi Hu	KELLY-4	1648

7590

07/28/2003

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EXAMINER

SMITS, TALIVALDIS IVARS

ART UNIT

PAPER NUMBER

2655

DATE MAILED: 07/28/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.
09/825,377

Applicant(s)
Yi Hu et al.

Examiner
Talivaldis Ivars Smits

Art Unit
2655



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Apr 2, 2001 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

DETAILED ACTION

Specification

1. The title of the invention is not sufficiently descriptive. A new title is required that is more clearly indicative of the novelty of the invention to which the claims are directed.

Drawings

2. The drawing of Figure 1 is objected to because it lacks verbal labels for the numbered elements. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-19, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by John G. McDonough *et al.* (U.S. Patent 5,784,532, issued July 21, 1998).

As per claims 1-9, 18, 19, and 24, McDonough *et al.* teach a codec (CELP vocoder, col. 1, lines 50-52) comprising a digital signal processor and an accelerator core (specialized DSP core with minimization processor, col. 3, lines 9-11 and 28-35; col. 2,), comprising MAC vector processing units (col. 6, lines 1-2) having SIMD architecture of similar operational units processing multiple data items simultaneously (col. 3, lines 11-18) in which, inherently an operation can be assigned for performance by one or more of the operational units under programmatical control, and optimized to perform encoding to a predetermined standard (CELP) performing the computationally relatively intensive parts of the coding algorithm (Table I with lines 30-32).

As per claim 10-14, the codec includes a register bank (col. 4, lines 56-65), and each operational unit can perform operations on the output of one or more of the operational units to derive a further output value, the outputs of a plurality of the operational units being summed storing the result in the register bank (*e.g.*, col. 11, lines 42-49; col. 5, lines 32-36 and 56-61).

As per claims 15-17, each operational unit can access a common memory unit, which includes a ROM and a RAM (col. 3, lines 11-22; col. 4, lines 30-35).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonough *et al.* in view of Yue-Peng Zheng *et al.* (U.S. Patent 6,314,393, filed March 16, 1999).

McDonough *et al.* do not explicitly teach executing program instructions as microcode to be decoded for execution by one or more operational units, nor a decoder including a finite state machine. However, the Zheng *et al.* CELP codec (Title) with an accelerator core (integrated circuit with multiple MAC elements, col. 1, lines 56 - col. 2, line 13) uses microcode (col. 10, lines 9-16) and, alternatively, comprises a finite state machine (col. 10, lines 16-17).

Therefore, it would have been obvious for an artisan at the time of invention to thus execute program instructions to simplify the codec design.

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonough *et al.* in view of Zheng *et al.* as applied to claim 21, above, and further in view of Frost *et al.* (U.S. Patent 4,926,482, issued May 15, 1990).

Neither McDonough *et al.* nor Zheng *et al.* explicitly teach inclusion of a programmed memory device. However, Frost *et al.* teach a programmed memory controlling ALUs (col. 10, lines 50-52) in a speech coder (voice data compression, Abstract). Therefore, it would have been obvious for an artisan at the time of invention to use a programmed memory device so as to enable changes in the codec hardware.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonough *et al.* as applied to claim 24, above.

McDonough *et al.* do not teach expressing the codec design in a hardware definition (a.k.a. description or design) language (HDL). However, the examiner takes Official Notice that it is notoriously well known to use HDL to develop, analyze, and document computer hardware design. Therefore, it would have been obvious for an artisan at the time of invention to use HDL because she would have known that it simplifies the design, documentation, and validation of the codec hardware.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

John G. McDonough *et al.* (U.S. Patent 5,926,786, issued July 20, 1999) and Ygal Arbel (U.S. Patent 6,282,631, issued August 28, 2001) teach use of an accelerator core in speech/audio coding.

Charlene S. Ku *et al.* (U.S. Patent 5,719,998, issued February 17, 1998) and Yew-Koon Tan *et al.* teach use of an accelerator core in speech/audio decoding.

10. **Any response to this action should be mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

(non-fee Amendments should be directed to: Mail Stop Non-Fee)

or FAXed to:


(703) 872-9314 (please label *formal* communications
"OFFICIAL"; please label *informal* or draft communications,
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park 2, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, Talivaldis Ivars Smits, whose telephone number is (703) 306-3011. The examiner can normally be reached Mondays-Fridays from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor for examiner's new Art Unit 2655 (starting June 29, 2003), Doris H. To, can be reached on (703) 305-4827. The facsimile phone number for Technology Center 2600 is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 2600 customer service, whose telephone number is (703) 306-0377.



TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER

Art Unit 2655
July 24, 2003